Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

Claim 1. (Currently amended) A method for optical wireless communication, comprising the steps of:

receiving a source data signal having data;

creating a set of temporally distinguishable transmission signals, the temporally distinguishable transmission signals being temporally separated from each other, such that a first temporally distinguishable transmission signal is temporally distinguished from a second temporally distinguishable transmission signal by a time-delay;

converting the set of temporally distinguishable transmission signals to obtain a corresponding set of temporally and optically distinguishable light signals, each light signal having a modulation representation of the data from the source data signal and a respective optical characteristic; and

transmitting the set of temporally and optically distinguishable light signals in a single output transmission beam through ~~a turbulent medium, whereby the set of light signals can pass through uncorrelated channels in the turbulent medium.~~ the Earth's atmosphere, wherein a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals.

Claim 2. (Cancelled).

Claim 3. (Previously presented) The method of claim 1, wherein said set of temporally and optically distinguishable light signals comprise a set of delayed, diverse light signals, and wherein:

said creating step comprises the steps of creating at least one duplicate of the source data signal and delaying the created duplicate signal to obtain the set of temporally distinguishable transmission signals having a non-delayed transmission signal and at least one delayed transmission signal; and

said converting step comprises the step of generating a set of delayed, diverse light signals in response to the set of temporally distinguishable transmission signals, wherein the set of delayed, diverse light signals includes a first light signal corresponding to the non-delayed transmission signal and at least a second light signal corresponding to the at least one delayed transmission signal.

Claim 4. (Currently amended) The method of claim 1, further comprising the steps of :

receiving the single output transmission beam after it has passed through ~~a turbulent medium~~ the Earth's atmosphere;

detecting temporally distinguishable light signals within the received single output transmission beam to obtain corresponding temporally distinguishable data signals, such that a first temporally distinguishable data signal is temporally distinguished from a second temporally distinguishable data signal by the time delay;

temporally adjusting [[each]] at least the first temporally distinguishable data ~~signals~~ signal obtained in said detecting step; and

logically evaluating ~~bits in each of said~~ each successive bit in the first temporally adjusted temporally distinguishable data ~~signals~~ signal with a corresponding successive bit in the second temporally distinguishable data signal to obtain each successive output bit in a single output data signal.

Claim 5. (Currently amended) A system for optical wireless communication, comprising:

means for receiving a source data signal having data;

means for creating a set of temporally distinguishable transmission signals, the temporally distinguishable transmission signals being temporally separated from each other, such that a first temporally distinguishable transmission signal is temporally distinguished from a second temporally distinguishable transmission signal by a time-delay;

means for converting the set of temporally distinguishable transmission signals to obtain a corresponding set of temporally and optically distinguishable light signals, each light signal having a modulation representation of the data from the source data signal and a respective optical characteristic; and

means for transmitting the set of temporally and optically distinguishable light signals in a single output transmission beam through ~~a turbulent medium, whereby the set of light signals can pass through uncorrelated channels in the turbulent medium.~~ the Earth's atmosphere, wherein a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals.

Claim 6. (Cancelled).

Claim 7. (Currently amended) The system of claim 5, wherein said set of temporally and optically distinguishable light signals comprise a set of delayed, diverse light signals, and wherein:

said creating means comprises means for creating at least one duplicate of the source data signal and delaying the created duplicate signal to obtain the set of temporally distinguishable transmission signals having a non-delayed transmission signal and at least one delayed transmission signal; and

said converting means comprises means for generating a set of delayed, diverse light signals in response to the set of temporally distinguishable transmission signals, wherein the set of delayed, diverse light signals includes a first light signal corresponding to the non-delayed transmission signal and at least a second light signal corresponding to the at least one delayed transmission signal.

Claim 8. (Previously presented) The system of claim 5, further comprising:

means for receiving the single output transmission beam after it has passed through ~~a turbulent medium~~ the Earth's atmosphere;

means for detecting temporally distinguishable light signals within the received single output transmission beam to obtain corresponding temporally distinguishable data signals, such that a first temporally distinguishable data signal is temporally distinguished from a second temporally distinguishable data signal by the time delay;

means for temporally adjusting [[each]] at least the first temporally distinguishable data ~~signals~~ signal obtained in said detecting step; and

means for logically evaluating ~~bits in each of said~~ each successive bit in the first temporally adjusted temporally distinguishable data ~~signals~~ signal with a corresponding successive bit in the second temporally distinguishable data signal to obtain each successive output bit in a single output data signal.

Claim 9. (Currently amended) An apparatus for optical wireless communications, comprising:

a data source that provides a first set of data signals that are identical;

a data delay device that delays a data signal in the first set of data signals to produce a second set of temporally distinguishable data signals, wherein the temporally distinguishable data signals in the second set are temporally separated from each other such that a first temporally distinguishable data signal is temporally distinguished from a second temporally distinguishable data signal by a time-delay;

a set of modulators ~~light sources~~ that modulate the second set of temporally distinguishable data signals to produce a ~~corresponding~~ first set of temporally distinguishable optical signals, each optical signal in the set of temporally distinguishable optical signals having a modulation representation;

a set of optical elements that impart each optical signal in the set of temporally distinguishable optical signals with an optical characteristic enabling each optical signal to be passed through uncorrelated channels in ~~a turbulent medium~~ the Earth's atmosphere; and

at least one optical-signal-combining device that combines the set of temporally distinguishable optical signals into a single output beam output for transmission through ~~a turbulent medium.~~ the Earth's atmosphere, wherein a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals.

Claim 10. (New) The system of claim 9, further comprising:

a receiver that receives the single output beam after it is transmitted through the turbulent medium, comprising:

at least one optical-signal-separating device that separates the single output beam, based on the optical characteristic, into a second set of temporally distinguishable optical signals, differences between respective optical signals in the second set of temporally distinguishable optical signals and corresponding optical signals in the first set of temporally distinguishable optical signals being due to fading caused by the Earth's atmosphere,

a set of detectors, each detector configured to receive a respective optical signal from the second set of temporally distinguishable optical signals and convert the respective optical signal into a received data signal, thereby producing a received-set of temporally distinguishable data signals,

at least one receiver-data-delay device that temporally aligns the received-set of temporally distinguishable data signals, thereby producing a final set of data signals, and

a logic gate that receives the final set of data signals and logically evaluates (i) each successive bit in a first data signal in the final set of data signals and (ii) a corresponding successive bit in a second data signal in the final set of data signals to produce each successive bit of an output data signal.

Claim 11. (New) The system of claim 9, wherein the duration of the time-delay is less than approximately 10 milliseconds.

Claim 12. (New) The method of claim 1, wherein the transmitting step comprises:

transmitting the set of temporally and optically distinguishable light signals in a single output transmission beam through the Earth's atmosphere, wherein a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals, and wherein the duration of the time-delay is less than approximately 10 milliseconds.

Claim 13. (New) The system of claim 5, wherein the means for transmitting step comprises:

means for transmitting the set of temporally and optically distinguishable light signals in a single output transmission beam through the Earth's atmosphere, wherein a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals, and wherein the duration of the time-delay is less than approximately 10 milliseconds.